

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. **(currently amended)** A cut off method for a cut off apparatus including:  
a preceding knife cylinder on whose peripheral surface a preceding helical knife is provided;  
a following knife cylinder on whose peripheral surface a following helical knife, which cuts off a web band like paper in cooperation with the preceding knife, is provided;  
a preceding knife driving motor which rotationally drives the preceding knife cylinder;  
a following knife driving motor which rotationally drives the following knife cylinder; and  
a cut off control device which individually controls the preceding knife driving motor and the following knife driving motor,

wherein said method comprises:

giving, when the web band like paper is cut, the preceding knife and the following knife a specified amount of torque in the direction in which the preceding knife and the following knife are pressed against each other, by means of the preceding knife driving motor and the following knife driving motor, respectively, wherein the specified amount of torque is generated based on the cutting torque necessary for the knives to cut off the web having a basic weight and being fed at a web feeding speed.

2. **(currently amended)** A cut off method as set forth in claim 1, wherein the absolute value of the torque given to the preceding knife by ~~means of~~ the preceding knife driving motor is

the same as the absolute value of the torque given to the following knife by ~~means of~~ the following knife driving motor.

3-18. (canceled)

19. **(new)** A cut off method as set forth in claim 1, wherein the value of torque given by the preceding knife driving motor is given as a torque pattern generated based on the feeding speed of the web and the length to be cut off.

20. **(new)** A cut off method as set forth in claim 1, wherein said cutting torque is sufficiently large to resist a cut-off reactive force added from the web to the preceding and following knives, and also to give an appropriate contact force to the preceding and following knives.

21. **(new)** A cut off as set forth in claim 19, wherein said torque pattern is a pattern having a rectangular shape, a trapezoidal shape, or a polygonal shape.

22. **(new)** A cut off as set forth in claim 19, wherein said torque pattern is changed depending on the web feeding speed.

23. **(new)** A cut off as set forth in claim 19, wherein said torque patterns for the preceding knife driving motor and the following knife driving motor are identical.

24. **(new)** A cut off method as set forth in claim 1, wherein the torque given to the preceding knife by the preceding knife driving motor and the torque given to the following knife by the following knife driving motor have opposite signs when the web is being cut and have the same sign when the web is not being cut.

25. **(new)** A method of cutting off a web having a basic weight and being fed at a web feeding speed between a preceding knife cylinder that carries on a peripheral surface thereof a preceding knife and a following knife cylinder that carries on a peripheral surface thereof a following knife, said method comprising:

determining an amount of cutting torque ( $T_{xa}+T_{xb}$ ) necessary for the knives to cut off the web, based on the basic weight and the feeding speed of the web; and

while the web is being cut, driving the following knife and the preceding knife respectively with a first torque component  $T_{xa}$  and a second torque component  $T_{xb}$  of the cutting torque in the direction in which the preceding knife and the following knife are pressed against each other;

wherein the first torque component  $T_{xa}$  and the second torque component  $T_{xb}$  have opposite signs.

26. **(new)** A method as set forth in claim 25, wherein the first torque component  $T_{xa}$  and the second torque component  $T_{xb}$  have different absolute values.

27. **(new)** A method as set forth in claim 25, wherein the first torque component  $T_{xa}$  and the second torque component  $T_{xb}$  have the same absolute value.

28. **(new)** A method as set forth in claim 25, further comprising  
while the web is being cut, varying an absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$ .

29. **(new)** A method as set forth in claim 28, wherein said varying comprises:  
raising the absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$  during an initial period of cutting the web;

lowering the absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$  during a subsequent, middle period of cutting the web; and

raising again the absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$  during a subsequent, final period of cutting the web.

30. **(new)** A method as set forth in claim 29, wherein  
the absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$  during the initial period of cutting the web is 1.1 to 1.5 times  $T_{xa}$  or  $T_{xb}$ ;  
the absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$  during the middle period of cutting the web is 0.6 to 0.9 times  $T_{xa}$  or  $T_{xb}$ ; and  
the absolute value of the first torque component  $T_{xa}$  or the second torque component  $T_{xb}$  during the final period of cutting the web is 0.9 to 1.1 times  $T_{xa}$  or  $T_{xb}$ .

31. **(new)** A method as set forth in claim 25, wherein the torque given to the preceding knife and the torque given to the following knife have the same sign when the web is not being cut.

32. **(new)** A method as set forth in claim 25, wherein the first torque component  $T_{xa}$  and the second torque component  $T_{xb}$  are applied to drive the following knife and the preceding knife, respectively, before the knives contact each other, thereby preventing inverse edges from occurring at the initiation of the cutting of the web.

33. **(new)** A method as set forth in claim 25, wherein absolute values of the first torque component  $T_{xa}$  and the second torque component  $T_{xb}$  are smaller than absolute values of torque amounts necessary for acceleration and deceleration of the cylinders.

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34.     **(new)** A method as set forth in claim 25, wherein, while the web is being cut, the preceding knife moves backward whereas the following knife moves forward, thereby minimizing influence of the cutting operation on the web feeding speed.